

## CLAIMS

1. A method for providing Quality of Service (QoS) routing of a network packet, the method comprising inserting a QoS code into an Internet Protocol (IP) address of the network packet.
2. The method in accordance with claim 1 further comprising:
  - checking unused bits of the IP address to read the QoS code upon receiving the network packet at an intermediate node on a network; and
  - re-transmitting the received network packet from the intermediate node with the QoS indicated by the QoS code.
3. The method in accordance with claim 2 further comprising storing the QoS code in the intermediate node.
4. The method in accordance with claim 1 wherein the IP address comprises an IP version 6 address.
5. A method for providing quality of service (QoS) routing of a network packet, the method comprising:
  - checking unused bits of an Internet Protocol (IP) address associated with the network packet to read a QoS code therein upon receiving the network packet at an intermediate node on a network; and
  - re-transmitting the received network packet from the intermediate node with the QoS indicated by the QoS code.

6 The method in accordance with claim 5 further comprising storing the QoS code in the intermediate node.

7. The method in accordance with claim 6 wherein the IP address comprises an IP version 6 address.

8. A method for providing quality of service (QoS) routing of a network packet, the method comprising:

associating one of a plurality of QoS codes with each of a plurality of QoS levels;

inserting one of the QoS codes into unused bits of an IPv6 address of the network packet;

checking the unused bits of the IPv6 address to read the QoS code therein upon receiving the network packet at an intermediate node on a network; and

re-transmitting the received network packet from the intermediate node with the QoS indicated by the QoS code.

9. The method in accordance with claim 8 further comprising the step of storing the QoS code in the intermediate node.

10. Apparatus for providing Quality of Service (QoS) routing of a network packet, the apparatus comprising means for inserting a QoS code into an Internet Protocol (IP) address of the network packet.

1 11. The apparatus in accordance with claim 10 further comprising:

2 means for checking unused bits of the IP address to read the QoS code upon receiving the  
3 network packet at an intermediate node on a network; and

4 means for re-transmitting the received network packet from the intermediate node with  
5 the QoS indicated by the QoS code.

1 12. The apparatus in accordance with claim 11 further comprising means for storing the QoS  
2 code in the intermediate node.

1 13. Apparatus for providing quality of service (QoS) routing of a network packet, the  
2 apparatus comprising:

3 means for checking unused bits of an Internet Protocol (IP) address associated with the  
4 network packet to read a QoS code therein upon receiving the network packet at an intermediate  
5 node on a network; and

6 means for re-transmitting the received network packet from the intermediate node with  
7 the QoS indicated by the QoS code.

1 14. The method in accordance with claim 13 further comprising means for storing the QoS  
2 code in the intermediate node.

1 15. The method in accordance with claim 14 wherein the IP address comprises an IP version  
2 6 address.

1 16. A computer readable medium containing executable instructions for providing Quality  
2 of Service (QoS) routing of a network packet through a network, the executable program

3 instructions comprising program instructions for inserting a QoS code into an Internet Protocol  
4 (IP) address of the network packet.

1 17. The computer readable medium in accordance with claim 16, wherein the executable  
2 program instructions further comprise program instructions for associating one of a plurality of  
3 QoS codes with each of a plurality of QoS levels.

1 18. The computer readable medium in accordance with claim 16, wherein the executable  
2 program instructions further comprise program instructions for:

3 checking unused bits of the IP address to read the QoS code upon receiving the network  
4 packet at an intermediate node on a network; and

5 re-transmitting the received network packet from the intermediate node with the QoS  
6 indicated by the QoS code.

1 19. The computer readable medium in accordance with claim 18, wherein the executable  
2 program instructions further comprises program instructions for storing the QoS code in the  
3 intermediate node.

1 20. The computer readable medium in accordance with claim 19, wherein the IP address  
2 comprises an IP version 6 address.



1 21. A computer readable medium containing executable instructions for providing Quality  
2 of Service (QoS) routing of a network packet through a network, the executable program  
3 instructions comprising program instructions for:

checking unused bits of an Internet Protocol (IP) address associated with the network packet to read a QoS code therein upon receiving the network packet at an intermediate node on a network; and

re-transmitting the received network packet from the intermediate node with the QoS indicated by the QoS code.

22. The computer readable medium in accordance with claim 21, wherein the executable program instructions further comprise program instructions for associating one of a plurality of QoS codes with each of a plurality of QoS levels.

23. A method for providing Quality of Service (QoS) routing of a network packet through intermediate nodes on a network, said method comprising the steps of:

checking unused bits of an Internet Protocol (IP) address associated with the network packet to read a QoS code therein upon receiving the network packet at an intermediate node on a network;

storing the network packets in queues based upon the QoS indicated by the QoS code;

reading said network packets from said queues in a preferential manner; and

re-transmitting the stored network packets read from the queues with the QoS indicated by the QoS code.

24. The method in accordance with claim 23 further comprising the steps of:

associating one of a plurality of QoS codes with each of a plurality of QoS levels;

storing the plurality of QoS codes in the intermediate node; and

4           determining the QoS level that a network packet should be retransmitted with by using  
5   the QoS code read from the network packet during the step of checking unused bits to identify  
6   the associated QoS level.

1   25.    The method in accordance with claim 24 wherein the IP address is an IP version 6  
2   address.

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